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<110> Ajinomoto Co., Inc.

5 <120> A method for improving the thermostability of a
protein, a protein having improved thermostability and
a nucleic acid sequence encoding the protein

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<150> JP 2000-201920

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<151> 2000-07-04

<150> JP 2001-164332

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<170> PatentIn Ver. 2.1

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ata gta tct aaa tct aag aga ata tta gcc aaa ata aat gag ctt tat 96

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tct ttg cct atc gaa tat att gaa gta gaa gct ggt gat cgt gca ttg 144

Ser Leu Pro Ile Glu Tyr Ile Glu Val Glu Ala Gly Asp Arg Ala Leu

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gca aga tat ggt gaa gca ttg cca aaa gat agc tta aaa atc att gat 192

Ala Arg Tyr Gly Glu Ala Leu Pro Lys Asp Ser Leu Lys Ile Ile Asp

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 Lys Ala Asp Ile Ile Leu Lys Gly Pro Val Gly Glu Ser Ala Ala Asp
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5 gtt gtt gtc aag tta aga caa att tat gat atg tat gcc aat att aga 288
 Val Val Val Lys Leu Arg Gln Ile Tyr Asp Met Tyr Ala Asn Ile Arg
 85 90 95

cca gca aag tct atc ccg gga ata gat act aaa tat ggt aat gtt gat 336
) Pro Ala Lys Ser Ile Pro Gly Ile Asp Thr Lys Tyr Gly Asn Val Asp
 100 105 110

ata ctt ata gtg aga gaa aat act gag gat tta tac aaa ggt ttt gaa 384
 Ile Leu Ile Val Arg Glu Asn Thr Glu Asp Leu Tyr Lys Gly Phe Glu
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cat att gtt tct gat gga gta gcc gtt ggc atg aaa atc ata act aga 432
 His Ile Val Ser Asp Gly Val Ala Val Gly Met Lys Ile Ile Thr Arg
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25 agg aga aag aaa gta act tgt gtt cat aag gct aac gta atg aga att 528
 Arg Arg Lys Lys Val Thr Cys Val His Lys Ala Asn Val Met Arg Ile
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act gat ggt tta ttc gct gaa gca tgc aga tct gta tta aaa gga aaa 576

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Val Glu Tyr Ser Glu Met Tyr Val Asp Ala Ala Ala Ala Asn Leu Val

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Arg Asn Pro Gln Met Phe Asp Val Ile Val Thr Glu Asn Val Tyr Gly

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Asp Ile Leu Ser Asp Glu Ala Ser Gln Ile Ala Gly Ser Leu Gly Ile

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gca ccc tct gcg aat ata gga gat aaa aaa gct tta ttt gaa cca gta 768
Ala Pro Ser Ala Asn Ile Gly Asp Lys Lys Ala Leu Phe Glu Pro Val

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cac ggt gca gcg ttt gac att gct gga aag aat ata ggt aat ccc act 816
His Gly Ala Ala Phe Asp Ile Ala Gly Lys Asn Ile Gly Asn Pro Thr

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270

gca ttt tta ctt tct gta agt atg atg tat gaa aga atg tat gag cta 864
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tct aat gac gat aga tat ata aaa gct tca aga gct tta gaa aac gct 912
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ata tac tta gtc tac aaa gag aga aaa gcg tta acc cca gat gta ggt 960

Ile Tyr Leu Val Tyr Lys Glu Arg Lys Ala Leu Thr Pro Asp Val Gly

305 310 315 320

5 ggt aat gcg aca act gat gac tta ata aat gaa att tat aat aag cta 1008

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<213> Sulfolobus sp.

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35 40 45

Ala Arg Tyr Gly Glu Ala Leu Pro Lys Asp Ser Leu Lys Ile Ile Asp

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Pro Ala Lys Ser Ile Pro Gly Ile Asp Thr Lys Tyr Gly Asn Val Asp
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Ile Leu Ile Val Arg Glu Asn Thr Glu Asp Leu Tyr Lys Gly Phe Glu
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His Ile Val Ser Asp Gly Val Ala Val Gly Met Lys Ile Ile Thr Arg
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Phe Ala Ser Glu Arg Ile Ala Lys Val Gly Leu Asn Phe Ala Leu Arg
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Arg Arg Lys Lys Val Thr Cys Val His Lys Ala Asn Val Met Arg Ile
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Ala Pro Ser Ala Asn Ile Gly Asp Lys Lys Ala Leu Phe Glu Pro Val
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His Gly Ala Ala Phe Asp Ile Ala Gly Lys Asn Ile Gly Asn Pro Thr
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Ala Phe Leu Leu Ser Val Ser Met Met Tyr Glu Arg Met Tyr Glu Leu
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Ser Asn Asp Asp Arg Tyr Ile Lys Ala Ser Arg Ala Leu Glu Asn Ala
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Ile Tyr Leu Val Tyr Lys Glu Arg Lys Ala Leu Thr Pro Asp Val Gly
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for site directed mutagenesis

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for site directed mutagenesis

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Ser Gln Ile Ala Gly Ser Leu Gly Ile Ala Pro Ser Ala Asn Ile Gly

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Ala Leu Phe Glu Pro Val

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25

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30

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5 <213> *Thermus thermophilus*

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Ala Ile Phe Glu Ala Val

1 5

10

<210> 99

<211> 32

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5 <213> *Bos taurus*

<400> 99

Val Leu Val Met Pro Asn Leu Tyr Gly Asp Ile Leu Ser Asp Leu Cys

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Ala Gly Leu Ile Gly Gly Leu Gly Val Thr Pro Ser Gly Asn Ile Gly

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Ala Ile Phe Glu Ala Val

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<213> Saccharomyces cerevisiae

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Val Ser Val Cys Pro Asn Leu Tyr Gly Asp Ile Leu Ser Asp Leu Asn

5 1 5 10 15

Ser Gly Leu Ser Ala Gly Ser Leu Gly Leu Thr Pro Ser Ala Asn Ile

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20 Gly

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25 <211> 6

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<213> Saccharomyces cerevisiae

<400> 102

30 Ser Ile Phe Glu Ala Val

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<210> 103

5 <211> 32

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<213> *Caldococcus noboribetus*

<400> 103

10 Val Ile Val Thr Pro Asn Leu Asn Gly Asp Tyr Ile Ser Asp Glu Ala

1

5

10

15

Asn Ala Leu Val Gly Gly Ile Gly Met Ala Ala Gly Leu Asp Met Gly

20

25

30

5

20 <210> 104

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<213> *Caldococcus noboribetus*

25 <400> 104

Ala Val Ala Glu Pro Val

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